

## **ABSTRACT**

This invention concerns a luminescent optical memory material and method of forming this material, including the encoding of information by a photographic process. The method involves the use of silver halide crystals of a defined size range, with the optional use of sensitizers, emulsion stabilizers, and other agents followed by the absorption of luminescent dyes on the developed silver particle to form a luminescent optical memory system. The method involves synthesis of a photographic emulsion with silver halide crystals of a defined size range, applying photographic emulsion to a substrate, exposing to light photochemical treatment and a process of transformation of the silver particles formed in the places exposed by light into luminescent particles. The method involves obtaining a multi-layer luminescent material for a three-dimensional optical memory devices.